

## ABSTRACT OF THE DISCLOSURE

An endoscope observation system for in vivo cellular observation is disclosed that includes an illumination optical system having a light source for supplying illumination light to an object, an objective optical system that forms a magnified image of the object such that the absolute value of the image scale factor exceeds unity, and an image pickup unit that detects the magnified image. The illumination optical system is provided with a wavelength selection means for dividing, among the blue, green, and red wavelength ranges in the illumination light from the light source, either the blue wavelength range or the red wavelength range into two wavelength bands T1 and T2, with the wavelength band T1 being nearer the green wavelength range than is the wavelength band T2, and light in the wavelength band T1 is prevented from illuminating the object. An in vivo cellular observation method is also disclosed using an endoscope.